

Al-coated steel sheet, the Al-coated steel sheet can be plastically deformed to a shape of the fuel tank with good dimensional accuracy without damaging an Al-plating layer. The alkali-soluble film does not cause offensive fumes during welding, and is easily removed from the Al-coated steel sheet after construction of the fuel tank. The fuel tank made from the Al-coated steel sheet is corrosion-resistant at its inner and outer surfaces.

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) for obviousness over United States Patent No. 4,748,194 to Geeck (hereinafter "the Geeck patent") in view of Japanese Patent No. 41-0265967 to Isaki (hereinafter "the Isaki patent") and United States Patent No. 5,234,974 to Calhoun et al. (hereinafter "the Calhoun patent").

The Geeck patent discloses a gas tank container coated with a protective paint film that includes a paint-based epoxy resin mixed with a cross-linking agent and metal powder. The protective paint film is applied to a metal substrate. The protective paint film is permanently present on the metal substrate and not removed therefrom. In this sense, the permanent protective paint film is quite different from the removable alkali-soluble resin film of the present invention. Additionally, the Geeck patent does not teach or suggest using an Al-coated steel sheet as a substrate.

The corrosion-resistant steel sheet taught by the Isaki patent includes an Al-coated steel sheet coated with a composite film of chromate and organic compounds. The composite film is permanently present on the metal substrate and is not removed therefrom. As a result, harmful discharge of offensive fumes is inevitable during welding.

Finally, the Calhoun patent generally teaches an alkali-soluble polymer coating that may be applied to floor tiles and countertops to provide anti-fogging properties. However, there is no teaching or suggestion of applying the alkali-soluble polymer coating to an Al-coated steel sheet. More particularly, one seeking to removably coat an Al-coated steel sheet would not look to mixtures and compounds in the anti-fogging art without the benefit of

Applicant's disclosure. It is well settled that Examiners must look to what was taught prior to Applicants' invention, and Examiners may not use Applicants' disclosure to reject claims based upon a mosaic of diverse references.

In view of the preceding analysis, none of the cited references teaches or discloses, either alone or in combination, each and every claim element of amended independent claim 1. Specifically, none of the cited references teaches or suggests coating an Al-coated steel sheet with a readily removable film. For this reason, independent claim 1 defines over the cited prior art and is condition for allowance.

Dependent claims 2-6, which each depend directly or indirectly from allowable independent claim 1, are also in condition for allowance by definition. In addition, dependent claim 4 has been further amended to include the limitation that the alkali-soluble resin has an acid value of 40-90, in addition to the carboxyl group. The 40-90 acid value limitation is recited in dependent claim 3 and was inadvertently omitted from dependent claim 4.

Claim 7 stands rejected for obviousness under 35 U.S.C. § 103(a) over the Geeck patent in view of the Isaki patent, the Calhoun patent, and United States Patent No. 4,954,372 to Sako et al. (hereinafter "the Sako patent"). Dependent claim 7 depends from allowable independent claim 1. Therefore, dependent claim 7 is also in condition for allowance.

In conclusion, pending claims 1-7, 9, and 10 of the present invention are patentable over the cited prior art. Reconsideration of the outstanding claim rejections and allowance of claims 1-7, 9, and 10 are respectfully requested.

With regard to additional matter of interest, Applicants have re-worded the preamble of all of the claims to recite "a fuel tank made from an Al-coated sheet," instead of "an Al-coated steel sheet for a fuel tank." No new matter has been added.

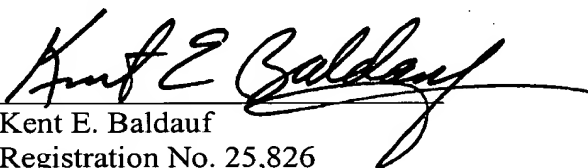
The Examiner's claim objections to dependent claims 4 and 6 have been considered but are respectfully traversed. The phrase "1-50% hydrogen atom of said carboxyl group" is supported on page 7, lines 13-27, of the originally filed specification. Moreover, the phrase "1-25 mass %" is supported on page 8, line 28, and page 9, line 19. This is not a typographical error. Applicants are satisfied that amended claim 4, supported by the specification, conveys that approximately 1 to 50 percent of the hydrogen atoms are substituted with alkali metal, depending on the free carboxyl groups. In addition, claim 6 adequately conveys that the ratio of the powdery synthetic resin added to the resin composition is determined within a range of 1-25 mass %.

For all of the reasons cited above, Applicants respectfully request reconsideration and allowance of all of the pending claims.

Respectfully submitted,

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Marked-Up Version of Paragraph

First Full Paragraph, Page 4

The present invention is accomplished for elimination of the above-mentioned problems. The object of the present invention is to offer an Al-coated steel sheet, and preferably a fuel tank made from an Al-coated steel sheet, which satisfies requisitions for use as a fuel tank superior of corrosion resistance and durability.

Marked-Up Versions of Claims

1. (Once Amended) [An Al-coated steel sheet for a fuel tank] A fuel tank made from an Al coated steel sheet having an alkali-soluble resin film directly formed on a surface of said Al-coated steel sheet.
2. (Once Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the resin is soluble in an alkali liquid of pH 9.0 or higher.
3. (Once Amended) The [Al-coated sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the alkali-soluble resin has a carboxyl group in its molecule with an acid value of 40-90.
4. (Once Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the alkali-soluble resin has an acid value of 40-90 and a carboxyl group in its molecule and 1-50% hydrogen atom of said carboxyl group is substituted by alkali metal.
5. (Twice Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 3, wherein the alkali-soluble resin is urethane.
6. (Twice Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the resin film is mixed with 1-25mass% a powdery synthetic resin.

7. (Twice Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the resin film has a thickness of 0.2-5.0 μ m in thickness is formed on the fuel tank made from an Al coated steel.

9. (Once Amended) The [Al-coated steel sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 3, wherein the alkali-soluble resin is acrylic resin.

10. (Once Amended) The [Al-coated sheet for a] fuel tank made from an Al coated steel sheet defined in Claim 1, wherein the resin film is mixed with 1-30mass% powdery silica.